

**REMARKS**

The Office Action of April 14, 2008, has been received and carefully reviewed.

Claims 1-25 are currently pending. Applicants have amended claims 1, 13, 15, 17, and 22-25 to further refine and clarify that which Applicants consider to be their invention.

**Rejections under 35 U.S.C. §102(e)**

The Examiner rejected claims 1, 2, 12, 14 and 18 under 35 U.S.C. §102(e), as anticipated by Seyanagi et al. The Examiner alleges that Seyanagi et al. teach a method for producing polyurethane (PUR) foam having fine cells, as in Applicants' claimed invention. However, Applicants note that Seyanagi et al. actually teaches the prior art process of adding a nonionic surfactant compound which does not contain a hydroxyl group, to an isocyanate group compound (ingredient 1) and injecting an unreactive gas into this mixture by agitation. This mixture containing the bubble dispersion is then added to an active hydrogen (polyol) compound (ingredient 2) and mixed together. The mixture is then injected into a mold for curing.

Applicants' claims 1, 13, 15 and 17 as amended, are now directed to a process which uses at least one nonionic surfactant containing a hydroxyl group. The non-ionic surfactant may also be silicone-based. It is clear that based on Applicants' specification, one of the advantages of Applicants' process is that it is not limited to nonionic surfactants without hydroxyl groups, as is the process disclosed in Seyanagi et al.

In addition, Applicants amended step (b) of claim 1 to clarify that the micro pores are generated by the non-reactive gas within the combined mixture of the first ingredient with the second ingredient and surfactant, to distinguish this step from Seyanagi et al., where the micro pores are generated in the mixture of the surfactant and the first ingredient only.

Finally, Applicants further distinguished claim 22 over the art, by inserting the phrase "in a non-supercritical state" after the term "non-reactive gases".

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). With regard to Applicants' claims as currently amended, Seyanagi et al. do not teach a process which uses at least one silicone-based nonionic surfactant containing a hydroxyl group. Furthermore, Seyanagi et al. do not teach a process of mixing the surfactant and ingredient 1, followed by adding ingredient 2, before subsequent agitation of the mixture and injection of the non-reactive gas to form the micro pores. Seyanagi et al. do not teach each and every element of the process of Applicants' amended claims, and therefore, Applicants' claims cannot be anticipated under 35 U.S.C. § 102(e). Applicants therefore, respectfully request withdrawal of the rejection.

Rejection under 35 U.S.C. §103(a)

The Examiner rejected claims 3-11, 13, 15-17, and 19-21 under 35 U.S.C. §103(a), as being obvious over Seyanagi et al. The Examiner additionally offers Seyanagi et al. for disclosing that the non-reactive gas may be positively sent into the mixture through agitation and that the size of the micro pores are controlled by adjusting the agitation conditions. The Examiner concludes that it would have been obvious for one of ordinary skill, at the time Applicants' invention was made, to look to Seyanagi et al. to teach control of micro pore size by controlling agitation to arrive at Applicants' claimed invention. Applicants respectfully traverse this rejection.

As Applicants discussed in the response to the above rejection, Seyanagi et al. actually teaches the prior art process of adding a nonionic surfactant compound which does not contain a hydroxyl group, to an isocyanate group compound (ingredient 1) and injecting an unreactive gas into this mixture by agitation. This mixture containing the bubble dispersion is then added to an active hydrogen (polyol) compound (ingredient 2) and mixed together. The mixture is then injected into a mold for curing.

As such, Applicants' amended their claims to clarify that the micro pores are generated by the non-reactive gas within the combined mixture of the first ingredient with the second ingredient and surfactant, to distinguish this step from Seyanagi et al., where the micro pores are generated in the mixture of the surfactant and the first ingredient only.

The burden is on the examiner to establish a *prima facie* case of obviousness of the claimed subject matter over prior art references. In re Deuel, 51 F.3d 1552, 1557, 34 USPQ2d 1210, 1214 (Fed. Cir. 1995). Only after that burden is met must the applicant come forward with arguments or evidence in rebuttal. Id. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Applicants submit that in view of Applicants' amended claims, Seyanagi et al. do not teach each and every element of Applicants' claimed invention, and therefore cannot render Applicants' claims *prima facie* obvious. As such, Applicants respectfully request withdrawal of this rejection.

The Examiner also rejected claims 22-25 under 35 U.S.C. §103(a), as being obvious over Seyanagi et al., and in view of Prasad (U.S. Patent No. 6,913,517). According to the Examiner, Seyanagi et al. are silent with regard to the volume of the micro pores or their size in the foam. Prasad is offered by the Examiner for teaching a foam pad having a porous volume of 25% or less by volume, and an average diameter of pores around 10-50  $\mu\text{m}$  in diameter. As such, the Examiner states that it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the method of Seyanagi et al. to include the micro pore volume of Prasad to arrive at Applicants' invention. Applicants traverse this rejection.

A close review of Prasad reveals that the method taught in Prasad cannot be combined with the method taught in Seyanagi et al.

Prasad teaches at least two differing methods for preparing a urethane foam having micro pores. Both preferred methods taught in Prasad, the mucell process, or the pressurized gas injection process, involve combining a polymer resin in either a heated molten state, or with a sheet of polymer resin in a pressure vessel, with a gas heated at high temperature, under pressure, into a *supercritical state*. The gas is mixed into the molten polymer, or absorbed by the polymer sheet and then melted, and the resulting mixture injected into a mold (Prasad at col. 10, line 40 to col. 11, line 39; col. 12, lines 10-30).

In contrast, the method of Seyanagi et al. mixes the urethane prepolymer with the surfactant at a low temperature of about 70°C and mixes in the N<sub>2</sub> gas with a mixer. At no time is the nitrogen gas heated under pressure to over 200°C and mixed with the polymer mixture. Moreover, Applicants have amended claim 22 to clarify that the non-reactive gas is not in a supercritical state when mixed, as in Prasad.

"If the teachings of a prior-art reference would lead one of ordinary skill in the art to make a modification which would render another prior-art process inoperable, such a modification would generally not be considered obvious." See, In re Gordon, 733 F.2d 900, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

In the present Office Action, the Examiner's combination of Prasad with Seyanagi et al. would not be possible as the two processes use vastly differing temperatures and pressures to accomplish different processes. As such, Applicants submit that one of ordinary skill in the art would not have been motivated to

combine the method of Seyanagi et al. with the teachings of Prasad, with any reasonable expectation of success, because combination of processes could not result in Applicants' claimed foam. In addition, in view of Applicants' amended claim 22, the combination of references does not teach each and every element of Applicants' claimed invention. As such, the combination of references cannot render Applicants' claims *prima facie* obvious, and Applicants respectfully request withdrawal of this rejection.

It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,  
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